ELECTRICAL WORLD

News Issue

FEBRUARY 19, 1949

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James F. Fairman Nominated for AIEE Presidency

Your own records will show what we've done about lightning

In the middle of 1943 our engineers made discoveries about impulse strength which led to changes in design of small, low- and medium-voltage distribution transformers. What these changes accomplished can be seen in *your* records.

If your experience is typical, roughly half of all distribution transformer failures can be charged to lightning. However if your records are typical—on all Spirakore transformers delivered since late 1943, lightning failures have been almost insignificant.

One of Many Spirakore Advantages

Important as this increased impulse strength is, it is still only one of the advantages you get with General Electric distribution transformers. You get Spirakore design throughout the entire line of single-phase liquid-filled transformers—with its great savings in size and weight. You get improved clamping construction for greater mechanical strength. You get sealed tanks for longer oil life. You even get a new, better, synthetic-resin baked-on paint which improves appearance and reduces maintenance.

Spirakore Still Leads

Today as ten years ago when lighter, smaller Spirakore transformers made history Spirakore still leads the field—the finest distribution transformer we have ever made, the finest you can buy. Ask for Bulletins GEA-4885 and GEA-4521. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

The Electrical Week

A study of United States power policy and operations, ordered by the 80th Congress but still not released, advocates vast changes in federal law, policy, and practice governing government hydro projects. For business-managed utilities most significant is the claim that rates of existing federal power projects would have to be raised 106.31% if they were to pay their own way . . . Commissioner Bacher has revealed that AEC expects to have a full-scale atomic-electric central station running by 1957. The plant will answer many of the cost questions utilities have been asking . . . The House Appropriations Committee has approved $2,500,000 for TVA's New Johnsonville steam plant . . . Progress in insulation received a thorough review at Doble Engineering Conference at Boston . . . And at Cincinnati, EEI's T&D Committee took up the problems of restoring service after severe storms and whether mobile radio facilities should be owned by utilities or rented from a communications utility.

Vermont's Sen George D. Aiken turns up with the latest on the power shortage. It's nothing new, according to Aiken, for "it's been with us since the rural electrification program first got under way in 1935."

Interior Secretary Krug brushed aside press conference questions as to whether the Reynolds Metals-Wisconsin Electric Cooperative ACSR contract might be a good source of conductor for the Bureau of Reclamation's transmission program. In a speech to NRECA's recent convention, though, Krug implied support for the conductor program with the comment: "I believe that you will get your needed conductor and other equipment and you have the full backing of the Interior Department in that activity."

The Budget Bureau's rejection of the Central Arizona reclamation project, which already had been okayed by the Interior Department, was no surprise. It just proved that no one in Washington, including the President, wants to mix in the Arizona-California scrap over Colorado River water. The Central Arizona project would consume water that California claims.

There's one consolation, at least, for those power supply people who are wrestling with the problems suggested by atomic-electric power generation. Atom Commissioner Robert F. Bacher says that "the conditions necessary for such an explosion (of an A-bomb) cannot be attained in a nuclear reactor," i.e., a power pile. That doesn't solve the radiation problem, which would be one of the largest facing a power system that contemplated using atomic heat sources.

Manufacturers' representatives at the present NRECA convention had two primary topics of conversation. In order, they were the Reynolds-WEC aluminum conductor contract and the high cost of exhibiting and holding open house.

The House Labor Committee was urged by Russ Nixon, UE Washington representative, to establish a 35-hour week as a step toward the union's ultimate objective of a 30-hour week with no reduction in take-home pay.

From July 1, 1948, until mid-January, 1949, REA loaned $45,000,000 for generation and transmission. It expects to double this amount by June 30, according to Administrator Wickard.

The Economic Cooperation Administration has added Daniel T. Cruse, president of Chicago Local 794 of IBEW, to its Labor Division staff in Paris.

Few proposed "valley authorities" have much chance of serious consideration, but the worst bet is the would-be Savannah Valley Authority. The Savannah River is in the heart of the South—the Dixiecrat South, that is.

Notes From The News

In January, when power was in short supply in the Pacific Northwest, Utah Power & Light Co exported 40,000,000 kwhr to Washington and Oregon . . . Kids will be kids. The British Electricity Authority has sent a poster to 30,000 schools warning children not to climb poles or towers, not to fly kites or balloons near wires, and not to throw stones or other missiles at equipment . . . Hawaiian Electric Co has purchased an 800-customer system of the Ewa Plantation Co . . . Employees of the Fort Wayne, Ind., municipal system want a pay increase . . . A new exhibit building of Edison memorabilia has been opened at the Thomas A. Edison, Inc. plant at West Orange, N. J. . . . Ebasco Services will conduct a seminar on public utility safety Feb 21 to March 4. New York University will cooperate, and some of the meetings will be held there . . . Gov James H. Duff of Pennsylvania has named a 12-member arbitration board from which three persons

Continued on following page

would be selected to arbitrate public utility disputes if state mediation should fail . . . Reginald E. Gillmor, vice-chairman of NSRB, has resigned to return to his position as vice-president of the Sperry Corp.

Laurence Gas & Electric Co had reason to celebrate Valentine's Day. It was 100 years old. Electric operations, however, were not started until 1887 . . . Harry A. Curtis, dean of the College of Engineering, University of Missouri, has been confirmed by the Senate as a member of the Board of Directors of the Tennessee Valley Authority. His term will expire on May 18, 1957 . . . Vivien Kellems, Connecticut electrical manufacturer, is still defying Treasury Secretary Snyder to do something about her failure to withhold income taxes from her employees . . . Assistant Interior Secretary Warne claims there is a spot on the Yukon River in Alaska where water conditions are so favorable that a 250-ft dam will make possible an installation to produce 12,000,000,000 kwhr of energy annually. Grand Coulee, when all of its units have been installed, will produce only 8,000,000,000.

Financial:

Stockholders of both Detroit Edison Co and Florida Power Corp will be asked to approve increases in authorized common stock. The latter utility also wants to increase its preferred . . . Cleveland Electric Illuminating Co is planning to issue 464,912 shares of common for first sale to present common holders . . . The International Bank for Reconstruction and Development (World Bank) has made its largest development loan. Brazilian Traction, Light & Power Co. Ltd. will get $75,000,000 to help finance the foreign exchange cost of expanding hydroelectric power facilities and telephone installations in the Rio de Janeiro and Sao Paulo areas.

Legislation:

The Pennsylvania Public Utility Commission is under fire. Two bills have been introduced in the Legislature to replace the PUC with a Fair Rate Board. The complaint is that the PUC approved rate increases . . . Ohio legislators are tax-minded. Bills have been introduced in the House to authorize cities to levy consumers' utility taxes up to 6% and to extend the present 0.65% utility excise tax through 1951 . . . In Illinois, a bill has been introduced to repeal the state utilities tax of 3%. The eventual goal is to allow cities to enact such a tax . . . Oregon has passed a law authorizing the filing of liens against property of public utilities for unpaid taxes. For the sixth time a Pennsylvania Assemblyman has introduced a bill to permit political subdivisions to serve customers in competition with privately owned companies.

PRESIDENT James B. Black, Pacific Gas & Electric Co, stands by as San Francisco's Mayor Elmer Robinson synchronizes the generators before pulling the switch in formal dedication of utility's Station P plant expansion. Two new units added 222,000 kw

A New York assemblyman has introduced a bill at Albany placing a maximum price on electricity sold after June 30. The price is 3¢ a kwhr . . . The Arkansas Public Service Commission is being criticized for allowing rate increases. A bill has been introduced in the Arkansas House to limit the PSC's authority to grant rate increases to 25% of basic rates in effect. In cases of "extreme hardship" the increase could be as much as 35%.

Construction:

A new lighting system has been installed to illuminate the dome of Kentucky's capitol . . . The turbines and boilers in the new 10,000-hp plant of Canadian Utilities, Inc. at Vermilion, Alberta, were used during the war on destroyer escorts of Canadian and the U. S. Navy . . . Explosive experts are having a field day at hydroelectric projects. Latest record was set when 1,360,000 lb of nitramon were exploded at the TVA's South Holston Dam.

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Secret Report Hits Power Policy

Study Ordered by 80th Congress Was Suppressed, Recommended Federal Law, Policy, and Practice Governing Hydro Projects Be Drastically Changed

FEDERAL INVESTMENT in new water control and use facilities erected by the Corps of Engineers and the Reclamation Bureau—independent of any now in operation—may run as high as $18,500,000,000.

The federal law, policy, and practice which now exist to govern such investment should undergo vast and basic changes if they are to become effective.

These are the most significant points of a long-suppressed study of United States power policy and operations that began bobbing back into the news recently. The 119-page document, which was ordered by the House Appropriations Committee of the 80th Congress, still hasn't been released. That isn't surprising in view of its contents, which include:

Rates Too Low

1. Flat assertions that rates on existing U. S. power systems would have to be raised an average of 106.31% if the projects were to pay their own way completely.

2. The recommendation—seconded by a Congressional study group—that federal power projects should pay full charges, including all taxes and interest.

3. The recommendation that Federal Power Commission—not the power-generating or marketing agencies—should control rates, allocations, depreciation, and accounting.

4. Categorical recommendations that the Southwestern Power Administration be junked, that Reclamation be prohibited from devoting interest payments on power investment to amortization of irrigation investment, and that undeveloped projects which achieved authorization before the postwar cost inflation and which can no longer be demonstrated feasible be de-authorized forthwith.

Asks Blanket Legislation

5. A suggestion that blanket authorizing legislation might be the only way to make sense out of the tangled status of existing federal power projects, which now cannot readily be compared with each other or with a theoretical standard.

Altogether, the report makes specific recommendations or suggestions on 16 different points. They are the result of a study by attaches of the House Appropriations Committee of the 80th Congress. Because of the explosive nature of many of these recommendations, the report was suppressed during the life of the 80th Congress. It has been bouncing around—under the impact of various and divergent political motivations—since the opening of the 81st Congress. Specifically, it has been woven into current House Appropriations hearings on the fiscal 1950 Interior Appropriation Bill.

Questionnaire Sent

In compiling information for the report, committee aides sent a lengthy and detailed questionnaire to interested federal agencies and to representative groups in the operating electric power industry. That these questionnaires evoked bitterly opposed answers from federal and private groups is apparent.

Here's how the report assembled the overall dimensions of the water control and use program upon which the Engineers and Reclamation are embarked. Reclamation had, either under way or proposed at the time of this study more than one year ago, 415 projects, involving 21,426,159 acres to be irrigated. The power capacity it then had authorized—excluding what then was in operation—totalled 2,612,250 kw. Another 4,271,220 kw were proposed, with a total of 6,883,570 kw authorized or proposed.

14,230,570 Kw Planned

The Corps of Engineers, at the same time—again excluding existing projects—had 40 projects authorized with an ultimate installation of 7,347,000 kw. Combined with the Reclamation total, this gave a grand total of 14,230,570 kw authorized, under way, or proposed.

Estimated initial cost of the Engineers' authorized capacity averaged out to $628 per kw based on May, 1946, cost levels. That becomes $876 when the same cost index—for February, 1949—is used. Interest during construction at 6%—which also was calculated in the report—raises the figure to $930 per kw. (The report adjusted the May, 1946, cost figures to those of January, 1948, and, adding interest during construction, arrived at a figure of $850 per kw.)

Multiplying the 14,230,570 kw of authorized, under-way, or proposed capacity by the $930 per kw figure gives $13,234,428,100.

The report then assumes that irrigation works will average $200 per acre. Multiplying that by the 21,426,159 acres in projects proposed or under way yields another $4,285,231,800. The report then adds that electric transmission facilities "could amount to another billion dollars or more." Grand total of the power, irrigation, and transmission items is $18,519,659,900.

These calculations, as laid out in the report, make some assumptions that are at least open to question. For one thing, they assume that the cost-per-kw figures for the initial installations at Army dams are fair standards by which to measure the cost per kw of power installed at Reclamation projects also.

Give Overall Picture

Still, however much they may be attacked, they give an overall figure of what existing and proposed water development programs may cost—something which is unobtainable in other federal documents. These figures also do not include TVA, REA, BPA, or SPA investments in place.

It has been widely asserted—during the year and more in which the report was heavily under wraps—that its finding as to the rate deficiencies of existing federal power projects was the principal reason why no release was made. A glance at the rate conclusions of the report seems to bear this out.

Specifically, the report finds that existing federal projects, in the fiscal year of 1946, would have paid taxes totalling $33,170,000 had they been privately owned and operated, which they did not pay.

Rates Attached

It finds that 15 power projects operated by the Reclamation Bureau would have had to raise rates by 20.39% (a 20.39% increase in electric revenue); Bonneville Power Administration would have needed a 102.53% rate boost; Southwestern Power Administration a 464.91% increase, and TVA a 134.94% rate hike "to cover all charges, based upon the frequently quoted statements of officials of TVA that TVA wholesale rates have been computed on a conservative basis to cover all costs of furnishing the service, including operation, depreciation, taxes, interest, and retirement of capital."

Gossip about the report during its

FIFTEEN CITIES are now included in the television network which reaches from the East Coast to the Mississippi. Black lines indicate coaxial cable and jagged lines radio relay. The network opened Jan 11 with the start of operation by the American Telephone & Telegraph Co of the coaxial cable between Cleveland and Philadelphia

period of suppression has been about like this:

"The report notes that rates would have to be raised substantially to pay all costs of existing projects. It's an election year. The report is one which can be defended easily before an audience that knows anything of economics, accounting, finance. But most voters don't know anything about these topics and don't want to hear them discussed from a political platform. The report also is subject to hit-and-run attack as a 'rate-raising' report. So let's keep it under cover until the election is over."

Describing what annual charges should include, the report recommended that they cover "all operation and maintenance expense, adequate provisions for depreciation, full taxes, full interest on the federal investment, including interest during construction, and interest on working capital."

Perhaps the broadest—if much less spectacular—among the report's recommendations are those which would add considerably to FPC's part in U. S. power development.

The report starts with the finding of an "urgent need" for uniformity in benefit determination, in accounting, and in rate-making. Its answer to the need is to let FPC do it.

It wants FPC to make cost allocations, rather than to say "Ja" to those made by the constructing or marketing agencies. It also wants FPC to evaluate the benefits to be derived from a given project and determine feasibility. It wants those calculations brought up to date if there's a lapse between the date of authorization and that of appropriation, and the report adds that:

"Full disclosures of all pertinent data should be made in the same manner that is used in the registration of securities before SEC."

It also recommends that FPC "have control over the accounting practices and rate-making procedures of all federal power projects . . ." subject to GAO audit yearly.

The report also suggests that the whole disputed subject of allocations on multiple-purpose projects might be avoided by having federal hydro projects get the same treatment that private licensees do when they build on navigable streams.

Its comments on depreciation practices of federal projects are obscure, but the report notes that:

"If it is assumed that the amount available for the amortization of debt is equal to the difference between the provisions for depreciation and the fund required for replacements, attention is called to the fact that many present projects do not have a margin sufficient to meet the amortization of debt in a 40 or 50-year period on a straight-line basis; that is, to provide for a current year requirement of 1/40th or 1/50th of the net federal investment."

The report suggests that much federal investment in transmission facilities can be obviated by a bus bar or "falling-water" sales policy.

It suggests that study be given to financing federal power projects by 50-year term or serial bonds, declares that "in general, federal power is not cheap . . .", and notes that the cream has been skimmed from the nation's hydro sites. And it adds:

"The Southwestern Power Administration serves no useful purpose and should be liquidated."

It suggests that non-power activities of TVA be transferred elsewhere in government; that FPC study costs at each federal power operation, set up uniform depreciation accounting practices, and impose on federal projects that which it imposes on privately owned power systems, and that FPC redetermine feasibility of each project. "All unsound projects should be de-authorized," the report declares.

Finding that the subsidy from power to irrigation construction is becoming a burden on power, the report suggests that studies be made of "the feasibility of assessing irrigation costs throughout areas contiguous to irrigation projects."

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Court Holds Power Sold to Dairies Tax-Subject

Electric energy sold to dairy plants whose operations are "essentially commercial" is "energy sold for commercial consumption," despite any "incidental" industrial processing of milk by the dairies. As such, the power they use is subject to the 3½% federal energy tax.

In so ruling this week (Feb 14) the Supreme Court ended a five-year fight by the Wisconsin Electric Power Co to recover some $6,800 paid in federal taxes. The high court's decision also cleared up a controversy resulting from two conflicting decisions by lower courts on energy sales to dairy plants.

Wepco paid the taxes on energy it sold to 27 dairy plants from April, 1940, to July, 1943. The utility then filed suit to recover the funds on grounds that the dairy operators had consumed the energy for industrial rather than commercial uses. The energy tax applies only to energy sold for domestic or commercial consumption.

A federal district court ruled against the utility and was upheld by the Court of Appeals for the Seventh Circuit. Previously, however, another federal appellate court had upheld a suit by the Public Service Co of Colorado to avoid federal taxes on energy sales to comparable dairy plants.

The Supreme Court noted that energy supplied by Wepco to its dairy customers was used for a variety of purposes, ranging from lighting to the powdering of pasteurization equipment. In no case was the energy metered especially for pasteurization, which the court conceded to be industrial processing. At the same time, the business of the dairy plants is essentially commercial, the processing being incidental to the distribution of milk to customers.

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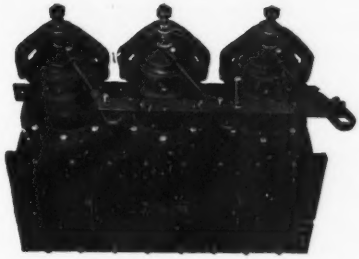
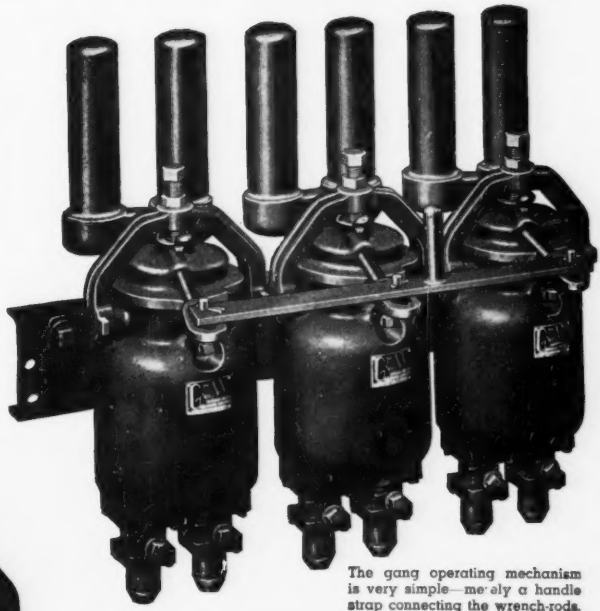


Type "FCBX" fuse-switch boxes provide full metal enclosure of connections. Necessary cable and conduit fittings are attached to the welded steel box.



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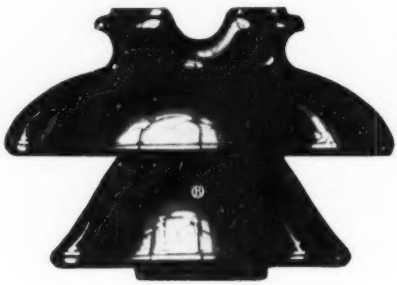

Ohio Brass

MANSFIELD, OHIO

Canadian Ohio Brass Co., Ltd., Niagara Falls, Ont.

OLDEST PLANT EMPLOYEE in point of service, Tommy Waterson, switchboard operator, has the honor of putting new 44,000-kw (capability) unit on line at Gorge Plant of Ohio Edison Co. Others are, left to right, E. M. Waters, plant superintendent; Malcolm W. Smith, construction superintendent; H. M. Dietrich, assistant plant superintendent; R. A. Galbreath, project superintendent; A. Carnegie, superintendent of power production and F. W. Funk, chief engineer in charge of production and transmission

Full Test of Atomic-Electric Power's Cost 8 Years Away, Bacher Says

A REAL TEST of the cost of atomic-electric power is only about eight years away. The Atomic Energy Commission expects to have a full-scale central-station power plant running by 1957 that will answer the cost questions.

That announcement was the high spot of the Commission's frankest discussion of atomic power prospects to date. It came in a speech that Commissioner Robert Bacher made last week to the American Academy of Arts and Sciences. His talk, a major change from the Commission's previous cautious pessimism about atomic reactors, shows that AEC has finally decided what it wants to do about developing new reactors—and is willing to talk about it.

AEC now has a program for tackling the three crucial questions that must be answered before anyone can tell what atomic energy's real role is going to be, and it has a pretty good idea when it can expect the answers. The problems:

1. Is "breeding" of atomic fuel possible? That is, can a reactor be built that will produce more fissionable material than it consumes? If the answer is yes, then atomic energy is a major power resource comparable to coal, good for thousands of years. If no, then Uranium 235 is probably a special freak that must be rigidly conserved for military uses. AEC should have an answer by 1951 or 1952.

2. Can atomic reactors produce large-scale electric power at a cost comparable with existing coal and hydro power plants? The plant scheduled for 1957 ought to answer this one.

3. If cost is no item, can atomic power plants do things that can't be done any other way? By 1952 or 1953 AEC may have an atomic engine for warships that will give them a range of tens of thousands of miles without refueling.

A couple of months ago, AEC reorganized its work, put all reactor problems under a single division and settled on a definite program of development. The new program, as outlined by Bacher, adds up to this: Construction of four new reactors, some of them announced previously but never before tied into an overall pattern, and establishment of a new test center where operating characteristics of new reactors can be tried out.

Two different reactors are being designed to test possibilities of breeding atomic fuel—and at the same time to experiment with power production possibilities.

One of these, sometimes known as the Zinn pile, will be built at the Argonne National Laboratory in Chicago. Construction is about to start. It'll be practically a slow-acting atom bomb—fueled with highly enriched U235, operating, like the bomb, with fast neutrons. A bomb-like reactor using plutonium has already been built at Los Alamos, but it is small and cool. The Zinn pile will run at an extremely high temperature—perhaps as much as 2,000F—and will produce considerable power. Heat will be taken out of it by circulation of a liquid metal (possibly a sodium-potassium alloy) through the pile and then through a heat exchanger.

Check Breeding Piles

Many physicists are convinced that only a bomb-type pile can breed successfully. AEC is going to check that theory by trying to breed with a pile using only slightly enriched fuel and medium-energy neutrons. General Electric will start construction of this reactor some time this year at its Knolls Atomic Power Laboratory near Schenectady. The GE reactor will run somewhat cooler than the Zinn pile but will also take off a substantial amount of power by circulating liquid metal.

A materials testing reactor, for which design is well along, will be built at the proposed new test center, to be somewhere in the West; the exact location hasn't yet been picked. It will be operated as a sort of extension division of the Argonne Laboratory.

The test-reactor, entirely a tool to help in design of other reactors, will be so built as to produce a high concentration of neutrons (a large number of fissions) in a small space. Researchers will take materials now being considered for possible use in reactor construction, insert them into the test-reactor, and see what happens to them under high intensity neutron bombardment.

Transmutation a Problem

This is one of the major problems of reactor design. A material may seem to have just the right properties for, say, a cooling pipe or a structural frame. But over the course of time, the operation of the reactor might transmute that material into some quite different material, with just the wrong properties.

The fourth unit in the AEC program is intended to be a prototype of a propulsion engine for submarines and other naval vessels, which means it must produce a lot of power in a small space. It will use enriched U235 for fuel and will have no chemical treatment plant. The engine will be so designed that when fission products begin to poison the reactor the whole fuel unit can be yanked out and sent to a treatment plant, while a new fuel unit is inserted in the engine.

Its construction, by Westinghouse, is scheduled to start early in 1950 at

the Western test center.

For the next 8 months, AEC expects to concentrate on these five projects. But it has some plans on the back burner to tackle after that.

One of these is the full-sized power plant. Another is an airplane engine, for which Fairchild's NEPA project under the air force has spent some $10,000,000 on preliminary studies. AEC is now studying a thorough-going progress report made by an Massachusetts Institute of Technology group. It's understood that this report was somewhat unfavorable: at any rate NEPA's plan to start building an engine has been deferred for a year or so.

AEC designers have a whole string of other reactor types they want to bring up for consideration in a year or so. One is an up-to-date unit using natural uranium; this might become important if someone discovered a plentiful new source of uranium or an easy way of using low-grade sources so that breeding could be ignored. Another is a cheap, simple reactor that laboratories could use simply as a source of neutrons. Still another is the so-called homogeneous reactor, simply a circulating mass of fissionable material in liquid or gaseous form that would combine reactor and heat exchanger in one unit.

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Non-Ferrous Metals Will Be Stockpiled for U. S.

For users of non-ferrous metals, bad news—the Munitions Board is building America's stockpiles. Civilian demands are to get second place. Voluntary agreements have already been made with producers of copper, lead, and zinc. These producers have given assurances that they will furnish the amounts required to meet the Board's goals for the present fiscal year.

These goals for the first quarter, last July-September, were copper, 30,000 short tons, lead and zinc, 16,000 short tons each. Delivery is to be made by June 30, 1949. Tin goal for the entire year is 4,500 long tons. Aluminum goal, rated in the form of bauxite, is 503,000 long tons.

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Bargaining Agent Named

Employees of Carolina Power & Light Co. in the Asheville, N. C., area have voted in three separate unit elections for local B-907, International Brotherhood of Electrical Workers (AFL) as bargaining agent. Workers at Walters hydro electric plant and dam in Haywood County and at a substation at Canton voted against the union.

New Johnsonville over 1st Hurdle As Committee Okays Deficiency Bill

WITH FUNDS for Tennessee Valley Authority's proposed New Johnsonville steam generating plant providing the principal item of debate, the House Appropriations Committee wound up action on a $467,000,000 deficiency appropriation bill this week.

Appropriation Voted to TVA

The second "Battle of New Johnsonville" apparently was settled early in the week, when the Appropriations Committee voted TVA $2,500,000 to start construction of the new thermal plant. Though the committee vote on this issue was not announced, it reportedly found the members divided almost strictly along party lines. This was the first concrete evidence that House Democrats would line up solidly behind the plant, for which the President has repeatedly demanded funds.

Though the committee trimmed some $14,000,000 off the total deficiency appropriations requested by the President, it gave him most of the power funds—$54,000,000—and all the power policy changes he sought. The policy reforms involved limitations imposed on Interior Department agencies in appropriation acts passed by the Republican 80th Congress. The committee wiped out the following restrictions:

1. A provision terminating the salaries of Reclamation Commissioner Michael Straus and Regional Reclamation Director Richard Boke as of Jan 31. Both men have remained at their jobs despite the pay cut-off.

Force Account Limit Removed

2. Limitations on force-account work (to 8%) on all projects of the Reclamation Bureau and Bonneville Power Administration. But the committee warned both agencies to contract for "all work possible" and hold force-account operations to "a minimum consistent with the government's interest."

3. Ceilings on activities at Reclamation Bureau's Denver engineering office, on the Bureau's total payroll for personal services, and on numbers of employees in higher-paying jobs.

Bonneville received $6,047,800 in new appropriations and additional contractual authority of $1,452,200. Reclamation received a total of $17,735,500 in new appropriations.

In reducing TVA's budget request of $3,000,000 for the New Johnsonville plant, the committee expressed doubt that more than $2,500,000 could be used before the end of the fiscal year on June 30. TVA's requests for $450,000 to start installation of two new hydro-electric generating units, one each at Chickamauga and Guntersville Dams, was approved.

The committee approved expenditure of $10,500,000 by the Army Engineers on three Columbia Basin power and river control projects—McNary, Ice Harbor, and Chief Joseph Dams. This was $1,000,000 below the total budget request. The Engineers' request for $16,000,000 for work on six multiple-purpose flood control projects was cut by the committee to $14,000,000. The projects affected included the Center Hill and Wolf Creek Dams on the Cumberland River and the Buggs Island, Va; Clark Hill, Ga.; Detroit Dam, Ore., and Fort Gibson, Okla., projects.

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Michigan PSC Attacked for OK on Rate Raises

A controversy between Michigan's Public Service Commission and municipal officials in Detroit and other cities in the state has arisen as the result of recent rate increases to utilities, including the Detroit Edison Co.

At a recent conference with the PSC, city attorneys asserted that PSC members should be replaced, because of their grants of $30,000,000 in rate boosts. The attorneys charged that the Commission was overly fearful for the stability of the companies at the expense of the public.

In reply to the charges, Chairman Stuart B. White maintained that in the face of rising prices in other industries, any Commission doing its duty would have had to grant relief to utilities.

The possibility of replacing Commission members is slight. Gov G. Mennen Williams saw the conflict as one of divergent philosophies and that, he said, was insufficient reason to institute ouster proceedings. Under normal circumstances, only one change in membership can take place during the governor's present term of office since only one commissioner's term expires.

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PG&E Buys Coast Utility

Pacific Gas & Electric Co has purchased the Oaks Light & Power Co and has begun electric distribution to about 400 customers in Clearlake, Oaks, and Glenhaven, Lake County, Calif.

MANUFACTURERS as usual, participated in Doble conference at Boston. Left to right are W. R. Streuli, Brown-Boveri Corp; M. L. Manning, Kuhlman Electric Co; Lindsay Ellms and T. F. Brandt, Ohio Brass Co; L. Wetherill, General Electric Co; R. J. Neagle, Allis-Chalmers Manufacturing Co; A. W. Hill, H. L. Cole, and G. L. Moses, Westinghouse Electric Corp; and E. B. Rietz, General Electric Co

Doble Engineering Clients Learn of Progress in Insulation Field

CONTROL OF INSULATION performance through improved design, manufacture, and testing technique advances steadily. This was again evidenced at the recent annual conference of Doble Engineering Co clients at Boston. Total registration for the five-day sessions was 240.

Major advances discussed included (1) new methods of in-place testing of apparatus bushings that exclude insulation external to the bushing, (2) use of a new travel recorder for high-speed circuit breakers, and (3) methods for drying out transformers in service.

Report was made on extensive transformer winding power-factor data from field and factory. Experience was presented on transformer by-pass filtration, gas detector relaying, tests on generator windings before and after failure, and surge protection for generators. A new line of attack relates to control of corona and slot discharge in generators. A laboratory has been set up for corona analysis and ionization study at Doble headquarters. Further advances were noted in cable fault location, testing capacitors for power-factor correction, and a demonstration of the behavior of water in oil in the presence of electrostatic fields.

Tests at 60 cycles on more than 3,600 lightning arresters showed that the majority of arresters of a given type yield similar test results. Many units with test results differing from the foregoing were found to have cracked porcelain, to be corroded, or to contain moisture.

The use of the ungrounded specimen test to separate losses of individual pieces of apparatus in cases where the high-voltage connection cannot readily be opened was reported. A specific application is measurement of losses and power-factor of a current transformer in a unit type substation without disconnecting the bus leads.

Interpretation of power-factor values based on test data was presented for 990 groups of power and distribution, 135 groups of potential, and 95 groups of current transformers. One operating company reported the use of a combination Kelvin-Wheatstone bridge to locate poor connections inside transformer tanks. Instrument range is 100 microhms to 11 megohms. General design practice by manufacturers includes condenser taps for testing bushings for 115-kv and higher service. Windings no longer need be disconnected when testing bushings are thus equipped.

Leading transformer makers described improved transformer construction and maintenance. Advances included (1) development of a thermosyphon breather, (2) improved factory heat run techniques, and (3) use of power-factor in control of component insulations. Described also was a relay for conservator transformers that works on gas accumulation as well as abnormal pressures.

Insulating oil grows in importance. One operator reported marked improvement in a 4-year test of acid-sludging oil in a transformer equipped with a dehydrating breather and thermo-siphon filter. Bauxite and later activated alumina blocks were used in this unit. Sludge was removed from zones of thermal action. One author showed that where interfacial tension of an oil exceeds 20 dynes per cm. several hitherto standard but time-consuming tests can be eliminated. Utility of the power-factor test, especially in conjunction with the IFT test, was stressed by the speaker.

ELECTRIC UTILITY men get together at Doble conference. Left to right are H. A. Cornelius, Public Service Co of Northern Illinois; P. L. Bellaschi, consulting engineer; I. W. Gross, American Gas & Electric Service Corp; and R. W. Cranston, West Penn Power Co

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Sho-Me Sells Properties

Sho-Me Electric Cooperative disposed of some of its properties to other REA-financed co-ops. It sold small electric power and water plants in Puxico Mo., to the Ozark Border Electric Cooperative, Popular Bluff, for $82,639. Transmission lines between Delta and Sturdivant were purchased by Scott-New Madrid-Mississippi Electric Cooperative, Sikeston, Mo., for $120,000.

Restoration of Service and Mobile Radio Discussed by EEI Committee

RESTORATION OF SERVICE following severe storms, safe and dependable distribution, and the pros and cons of private vs leased mobile radio were major topics at the Cincinnati meetings of the Edison Electric Institute Transmission and Distribution Committee on Feb 10 and 11.

The restoration plans set up by Florida Power & Light Co; Public Service Electric & Gas Co, Newark; and Consolidated of Baltimore were reported in detail by J. B. Hiers, G. E. Dean, and L. G. Smith respectively. Query revealed that practically all utilities represented reclose a circuit before patrolling to identify the storm circumstance. Stress was put on satisfying the whole affected public, keeping the management posted on progress, and averting storm outages by anticipatory inspection and maintenance.

Case for Rental Unit

The case for rental of common carrier or private mobile radio service by electric utilities from communication utilities was presented by R. E. Kolo of Cincinnati & Suburban Bell. He said he felt the need of dispelling the motion that the telephone companies have nothing to offer power companies in the radio field. Monthly billings per unit in his territory to the power company average $26.20; some 574 mobile units over the country are served at the common carrier portals and 1,099 on private service. Fred Budelman of Link Radio gave details of latest utility-owned facilities and reported that one utility outside the continental U. S. A. is placing its entire reliance for communication, relaying, telemetering, and supervisory control on point-to-point radio.

Flexibility Found Ample

Union Electric Co of Missouri, said W. R. McMillan, has had since 1946 as many leased (59) as owned (55) units and finds the flexibility of the former ample for both construction and emergency. W. R. Waddington, of Kansas Gas & Electric Co found directional antennas weak with ice loading, advised better stocks of gasoline for auxiliary power units and larger batteries.

Line work on poles continues to be the No. 1 cause of electric utility fatalities, said D. C. Stewart, on behalf of the Accident Prevention Committee. Cases increased nearly 70% from 1946 to 1947. In a construction symposium that followed, particular emphasis was placed on ample climbing space. Clearances came up in a somewhat comparable discussion of lightning outages on distribution by J. F. Hennessy, of the Baltimore utility. He traced many wire failures to too close proximity of ground wires, braces, through bolts, arresters, and cutouts to the energized conductors.

Reports on various subcommittee standardization programs showed an increasing acceptance of statistical sampling for quality indications for insulators and hardware.

Eighty-three utilities with a combined 1947 peak of 28,147 megawatts had 2,849 megavolt amperes of shunt capacitors, mostly pole-type and about one third switched in some way.

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Dothan Plant to Be Sold

Voters of Dothan, Ala., have approved the sale of the city's interest in the Napier Field power plant. The City Commission will dispose of the property for the best price obtainable.

SEC RULINGS

WASHINGTON GAS & ELECTRIC Co's amended plan for reorganization has been approved. The plan now will be filed with the U. S. District Court for the Southern District of New York. An earlier plan had been rejected because of its provisions for issuance of secured debt by the new company. Under the amended plan, the capital structure of the reorganized company will consist of common stock and $150,000 of unsecured notes. The present preferred and common stocks of Washington receive no participation in the reorganization. (Release No. 8801).

NASSAU & SUFFOLK LIGHTING Co has received authorization to borrow $500,000 from two commercial banks on its unsecured 2½% notes maturing on June 30, 1949. (Release No. 8804).

KENTUCKY UTILITIES Co has received permission to sell at competitive bidding $10,000,000 of first mortgage bonds, Series B, due in 1979. The company proposes to use the proceeds for construction and to pay off $1,500,000 of loans. (Release No. 8805).

STANDARD GAS & ELECTRIC Co's application for postponement from Feb 15 to April 5 of the hearing on its plan for simplification of the capital structure of the Philadelphia Co has been granted. (Release No. 8815).

MEETINGS

National Association of Home Builders—Convention and Exposition, Stevens Hotel, Chicago, February 20-24.

National Adequate Wiring Bureau—Annual Conference, Stevens Hotel, Chicago, February 24-25.

Pennsylvania Electric Association—Transmission & Distribution Committee, Benjamin Franklin Hotel, Philadelphia, February 24-25; spring meeting, meter committee, Abraham Lincoln Hotel, Reading, May 19-20.

Rural Electrical Contractors Association—Annual Meeting, Edgewater Beach Hotel, Chicago, February 24-26.*

Missouri Valley Electric Association—Sales & Rural Committee, February 25; Accounting Committee, March 7; Engineering Conference, April 6-8; Rural Roundtable, May 4; Sales & Rural Conference, May 5-6; Accounting Conference, May 12-13; Annual Meeting, May 17. All meetings at the Hotel President, Kansas City, Mo.

American Society for Testing Materials—Spring Meeting and Committee Week, Edgewater Beach Hotel, Chicago, February 28-March 4; Annual Meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, June 27-July 1.

Exposition of Electrical Progress—Municipal Auditorium, Kansas City, Mo., March 2-6.

Interstate Power Club of New York—Spring Meeting, Hotel Martinique, New York, March 7.*

Institute of Radio Engineers—National Convention and Exposition, Hotel Commodore and Grand Central Palace, New York, March 7-10.

National Electrical Manufacturers Association—Winter Convention, Edgewater Beach Hotel, Chicago, March 13-18.

Conference for Protective Relay Engineers—Texas A & M College, College Station, Tex., March 14-16.

Oklahoma Utilities Association—Annual Convention, Hotel Tulsa, Tulsa, March 17-18.

Southeastern Electric Exchange—Engineering & Operation Section, General Oglethorpe Hotel, Savannah, Ga., March 24-25; Annual Conference, Boca-Raton Club, Boca Raton, Fla., April 13-15.

International Lighting Exposition and Conference—Stevens Hotel, Chicago, March 29-April 1.

Edison Electric Institute—Annual Sales Conference, Edgewater Beach Hotel, Chicago, April 5-7; Engineering Committee, Edgewater Beach Hotel, Chicago, May 2-4; Annual Meeting, Traymore Hotel, Atlantic City, May 31-June 2.

American Institute of Electrical Engineers—Conference on the Industrial Application of Electron Tubes, Statler Hotel, Buffalo, N. Y., April 11-12; South West District, Baker Hotel, Dallas, Texas, April 19-21.

National Association of Corrosion Engineers—Annual Conference and Exhibition, Netherland Plaza Hotel, Cincinnati, April 11-14.

Western Metal Congress & Exposition—Shrine Convention Hall, Los Angeles, April 11-15.

Midwest Power Conference—Sherman Hotel, Chicago, April 18-20.

National Electrical Wholesalers Association—Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio, May 1-6.

American Society of Mechanical Engineers—Spring meeting, Hotel Mohican, New London, Conn., May 2-4.

Electrochemical Society—Spring meeting, Benjamin Franklin Hotel, Philadelphia, Pa., May 4-7.

Instrument Society of America—Spring meeting, Royal York Hotel, Toronto, Canada, May 12-13.

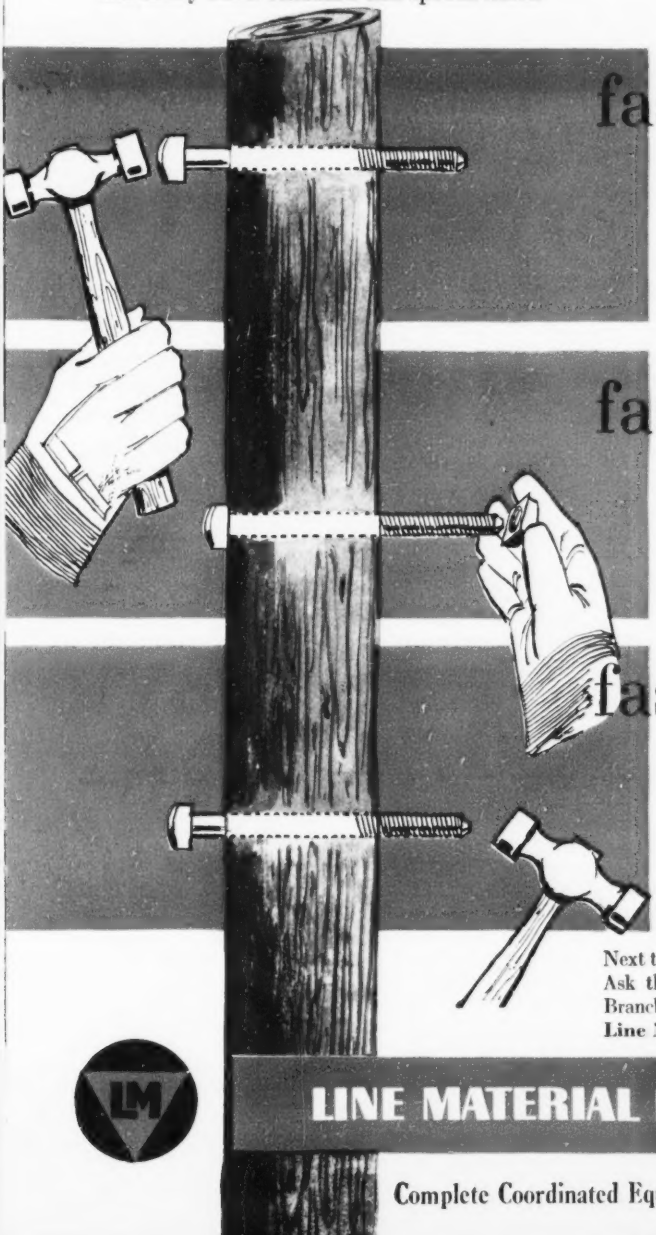
National Fire Protection Association — Annual meeting, Fairmont Hotel, San Francisco, Calif., May 16-19.

* Additions this week.

You can speed up construction with

L-M Buffer Point Bolts

Buffer Points are standard on all L-M Bolts 6" and longer, including carriage bolts, machine bolts and double arming machine bolts, eye, double arming, and thimble eye bolts and many other standard and special bolts.



faster driving

tapered buffer point guides the bolt through the hole, with less friction

faster threading

buffer point guides the nut right onto the thread—no fumbling, no lost time

faster salvaging

hammering the point removes the bolt quickly—can't hurt the thread

Next time you order bolts, get L-M Buffer Point Bolts. Ask the L-M Field Engineer, call the nearest L-M Branch, or write, wire, or phone **Hardware Division, Line Material Company, Milwaukee 1, Wisconsin.**

LINE MATERIAL Pole Line Hardware

Complete Coordinated Equipment for All Distribution Requirements

THE INDUSTRY IN PIC

ATTENTION GETTER, but not too productive, was this assembly line of General Electric Co at the Hotel Commodore, New York, during National Rural Electric Cooperative Association convention

3-KVA TRANSFORMERS assembled at "Hot for shipment. Assembly line produced six transf

PRESIDENT D. W. JARDINE, fifth from right, presents one of the 80 safety certificates awarded to Pennsylvania Electric Co supervisors whose departments had no lost-time accidents in 1948

NEW ENGLAND'S largest turbo-generator, a of Boston Edison Co. The plant is scheduled to

TURES

modore" branch of General Electric are ready an hour. Many will go on lines of REA co-ops

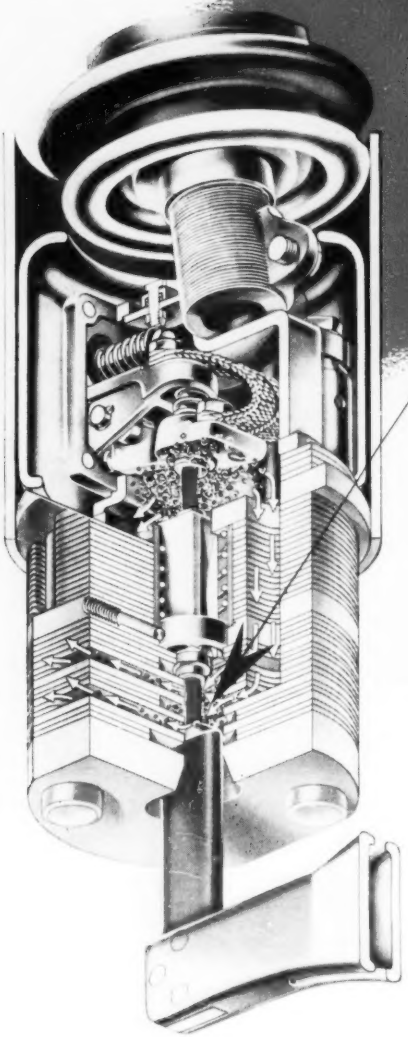
FLUORESCENT LIGHTING is being tested by Sylvania Electric on Kernwood Bridge, between Salem and Beverly, Mass. Installation consists of row of 8-ft slimlines, mounted 5 ft above roadway

0-kw unit, will be housed in the Edgar Plant operation in time to meet next winter's peak

BETTER WRITTEN communications are goal of Cleveland Electric Illuminating, which has hired Dr R. L. Shurter, right, head of Case Institute's Language and Literature Department, as a consultant

The case of the arc that chokes itself

. . . TO GIVE YOU BETTER SYSTEM PROTECTION



By drawing the power arc in a fiber chamber of limited cross section, the multi-flow "De-ion" grid controls the position, shortens the length, extinguishes the arc . . . quickly.

It protects your system . . . it protects itself—the Westinghouse GM Oil Circuit Breaker.

A faster opening time—5 and 3 cycles—assures swift isolation of valuable system equipment when fault conditions occur. And the same action that guarantees quick, positive protection for your system also works to protect the breaker itself. The secret is the multi-flow "De-ion" grid that extinguishes the arc so quickly that it cannot damage the breaker.

Actually, the arc chokes itself out. It is drawn first in an upper, then in a lower chamber. The first arc generates gas to create pressure on the oil, forcing it into the other chamber where it positions and snuffs out the second arc. The arc products are carried out through side vents and the dielectric strength of the gap is raised to the point where the arc cannot restrike. This unique principle assures low breaker maintenance . . . long breaker life . . . dependable system protection.

Ratings range from 69 to 230 kv, with interrupting capacity up to 5,000,000 kva. For details, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-60676

YOU CAN BE SURE . . IF IT'S Westinghouse

ARE YOUR BREAKERS KEEPING PACE WITH EXPANDING GENERATING CAPACITY?

In the next three years 15,000,000 kw will be added to American generating systems. Westinghouse can help you keep pace (in some cases) by boosting the interrupting rating of your present breakers . . . or in developing a planned schedule of replacement to meet today's and tomorrow's peaks.

Westinghouse GM CIRCUIT BREAKERS

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Poage Bill Would Give AT&T REA Competition

Is the telephone industry headed down the same road of federally encouraged public competition that electric utility companies have traveled for the last two decades? A lot of communications people thought so—and said as much—as the House Agriculture Committee opened hearings Feb 15 on the Poage Bill.

The measure, introduced by Rep W. R. Poage, Texas, would put the Rural Electrification Administration into the business of expanding telephone service. It would authorize REA to make loans to new and existing telephone systems, with preference to public agencies and non-profit bodies, for "improvement, expansion, construction, acquisition, and operation of telephone lines."

According to best available sources, the Poage Bill has excellent prospects for enactment by the House and at least a 50-50 chance in the Senate.

But the fight is only started. American Telephone & Telegraph Co is wheeling up the heaviest artillery in its organization against the bill. Representatives of the 25 associated Bell System companies testified that the Poage Bill is "unnecessary and unwise." And the 6,200 independent systems also are digging in for a last-ditch battle. They see the bill as a threat to their existence.

Issue underlying the fight in Congress is whether the government has a social obligation to provide telephone service as much as electric power.

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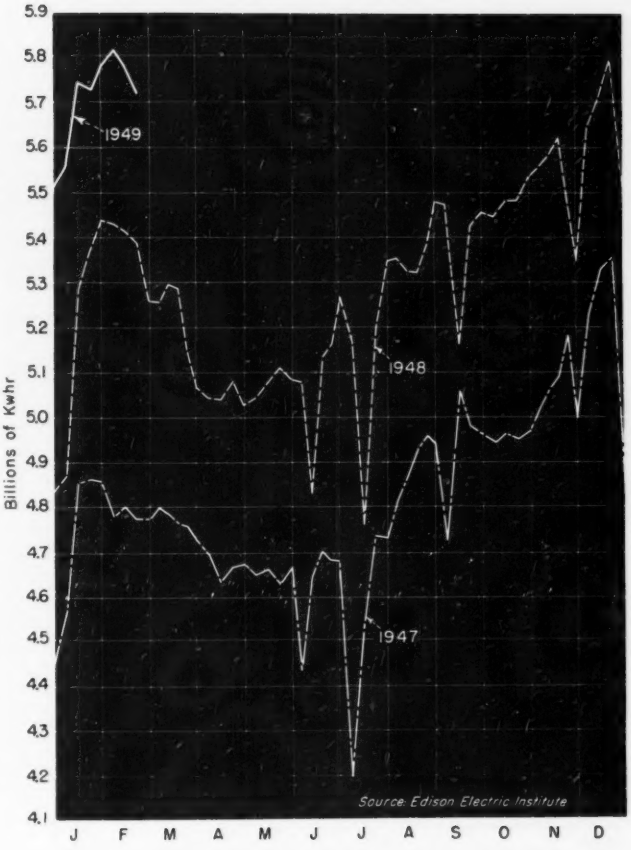
E. B. Robertson Heads Representative Group

The Electrical Equipment Representatives Association has been incorporated in Michigan as a non-profit organization. It was formed early in 1948 to provide a better understanding between sales representatives and manufacturers and to enable the members to solve their mutual problems through exchange of information and by research financed by the association.

Projects discussed at a recent meeting in New York included sales analysis, office procedure, methods of perpetuating an agency on death or retirement of a principal, and the hiring and training of personnel.

Officers are Elgin B. Robertson, Dallas, Tex., president; E. C. Minteer, Chicago, executive vice-president; Vincent J. Brown, Buffalo, second vice-president; J. J. Costello, Boston, treasurer; and Marvin R. Horne, Dearborn, Mich., secretary.



Output Takes Seasonal Drop

Seasonal decline in kilowatt-hour output was recorded for the second consecutive week during the week ended Feb 12, 1949, according to figures released by the Edison Electric Institute.

The amount of electrical energy distributed by the light and power companies of the country amounted to 5,722,086,000 kwhr, compared with 5,778,476,000 kwhr during the preceding week. The Lincoln Birthday holiday on Saturday, Feb 12, was a factor in the decrease. The total for the second week in February compared with 5,384,945,000 kwhr for the corresponding week in 1948, ended on Feb 14. The over-all percent increase for the country as compared with the previous year dropped to 6.3%, compared with 6.8% for the week ended Feb. 5.

Again the New England States showed a decrease below the preceding year and a larger drop than that reported for the week ended Feb 5, 2.8% compared with 1.6%. The Rocky Mountain group reported the largest percent increase, 17.0%, though that figure was a drop from 21.5% recorded for the week ended Feb 5.

Weekly Output, Millions Kwhr

1949		1948		1947	
Feb 12	5,722	Feb 14	5,385	Feb 15	4,778
Feb 5	5,778	Feb 7	5,412	Feb 8	4,801
Jan 29	5,810	Jan 31	5,429	Feb 1	4,777
Jan 22	5,769	Jan 24	5,436	Jan 25	4,856
Jan 15	5,727	Jan 17	5,370	Jan 18	4,857
Jan 8	5,742	Jan 10	5,278	Jan 11	4,853
Jan 1	5,562	Jan 3	4,868	Jan 4	4,574
1948		**1947**		**1946**	
Dec 25	5,508	Dec 27	4,830	Dec 28	4,442
Dec 18	5,790	Dec 20	5,368	Dec 21	4,940
Dec 11	5,705	Dec 13	5,327	Dec 14	4,778
Dec 4	5,646	Dec 6	5,218	Dec 7	4,673
Nov 27	5,349	Nov 29	4,983	Nov 30	4,448

Percent Change from Previous Year

	Feb 12	Feb 5	Jan 29
New England	− 2.8	− 1.6	− 2.0
Mid-Atlantic	+ 1.5	+ 2.4	+ 2.6
Central Industrial	+ 7.3	+ 8.2	+ 8.1
West Central	+ 8.9	+10.0	+11.0
Southeast	+ 9.4	+ 7.9	+ 6.8
South Central	+ 6.7	+ 9.5	+12.3
Rocky Mountain	+17.0	+21.5	+23.3
Pacific Coast	+ 6.8	+ 5.9	+ 7.4
Total United States	+ 6.3	+ 6.8	+ 7.0

IN THE INDUSTRY

RICHARD N. LARKIN

THE STORY you get in Washington is that Cap Krug long since will have stopped being Secretary of the Interior by the end of 1951. That would be a shame, if for no other reason than that of a statement he made recently at a New York press conference.

"Forecasting what I think the (power) demand will be, and taking public and private power together," Krug declared, "there will be no 15% (generating capacity) reserve even by 1960, assuming a full employment economy."

That's a pretty startling statement. It comes from a man who controls more capacity than anyone else in the land, and one who need not show his "openers" as a power supply expert. It utterly contravenes the best judgments of the men who operate 80% of the nation's capability. They say there'll be a 15% reserve by the end of 1951, and their prediction wasn't based on a business slump which would make reserve kilowatts out of those that are overloaded today. Some of the men responsible for the industry's prediction of 15% by the end of 1951 are those who were on the first team during the years when Krug was supervising a war power supply job that will always remain magnificent.

Somewhat less directly but equally clearly, Krug's statement contravenes the National Security Resources Board's finding on power supply. Its latest report finds a 13.1% reserve in 1951, assuming median hydro conditions. That isn't 15% true, but it's so close to 15% that the difference easily could be installed between Dec 31, 1951, and Jan 1, 1960. And there are fully qualified power supply people who cock a sardonic eyebrow at certain components of that NSRB figure, too, suspecting it of being on the unrealistically low side in some regions.

Of course, there's nothing sacred about a 15% reserve. For one thing, it's a national average. And there's no binding agreement within the electric utility industry that 15% is THE magic figure. It's a rule-of-thumb figure on which most operating men will agree, considering the industry as a whole. It varies between systems.

One expert disagreed with Krug, reasoning thus:

Now that we're beyond the manufacturing bottleneck on turbines ordered now, the reserve can be set at any level for which a power source is willing to pay. Today large steam machines can be ordered—if the plans are ready NOW—for operation in December, 1951. But give yourself a year to plan and two and one half years to install. That means steam capacity operating in 1952 at any level up to the 7,000,000 kw of large units which the manufacturers can turn out. Try the same cycle on hydro, allowing one year to plan and four to build. That means that, except for Bridge Canyon and St. Lawrence, you can have in operation at the end of 1954 any amount of hydro capacity which Congress will authorize and pay for, again limited only by manufacturing capacity, which certainly isn't tight after this year, according to NSRB's survey.

That leaves the issue pretty clear then. What Krug is saying is that either demand will far outrun the best figures that private power can assemble or private power will fail to install the equipment it knows it needs and has been struggling to get.

We'll have an answer three years from now. What a shame it would be if Cap isn't in the same elevated position to receive that answer!

TECHNICAL NOTES

ARCHER E. KNOWLTON

Power transformers are approaching the one and one-half century mark in megawatts three-phase.

Operating savings unfortunately are being deferred on some properties because the capital outlays to achieve them have to wait until generating capacity ceases to command the lion's share of the money in sight.

Relays not adaptable for changeover to carrier operation on 110 or 132 kv often can be relegated advantageously to 44 and 33-kv service.

Gas turbines accentuate the limitation of lubrication knowledge about the load-carrying ability of thin films of oil at high shaft speed in journal bearings.

Flyash (300 tons a day) at Venice Station is being sluiced to the Mississippi to form a levee. Disposal and protection in one operation.

Erosion of any kind is almost invariably aggravated by sharp angles or anything that acts as a baffle or obstruction. This is particularly significant for hydraulic circuits.

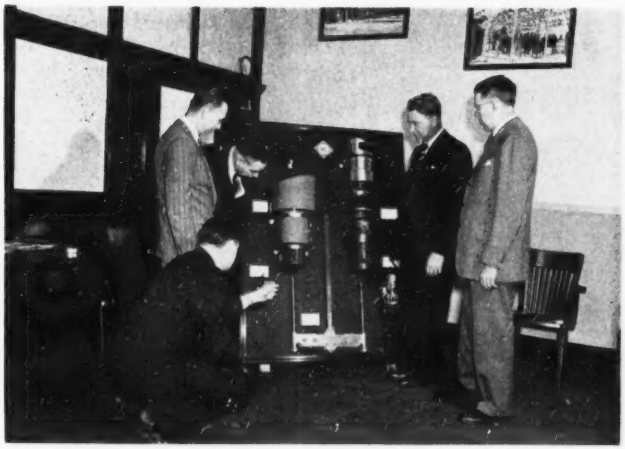
Corrosion-resistant finishes need a competent test specification more than they do a stipulation as to their composition or ingredients.

Circuit breakers offer four-point confidence if they are subjected to tests of power factor, oil dielectric, mechanism travel and contact resistance.

Thunderstorms are located 1,500 miles away by four "sferic" detector stations located at strategic points in the British Isles. Cathode-ray tube after-glow facilitates positive and accurate readings taken 12 times each day.

Fluorescent lamps when inoperative should, as a matter of safety, be placed in and broken up in the sleeve from which the replacement lamp was taken.

MANUFACTURERS and MARKETS



NEW DISPLAY BOARD for showing Allis-Chalmers Type BZO-160 oil circuit breaker parts is examined by company executives. Shown left to right are: H. B. Walters and L. W. Long, works manager and general manager, respectively, Boston Works; Fred Mackey, general works manager, general machinery division; W. C. Johnson, executive vice-president, general machinery division; and J. A. Keogh, vice-president and comptroller. Displayed on the board is a contact group with one Ruptor complete, one exploded, and other breaker components, all manufactured at the Boston Works

Backlog of Electrical Equipment Orders Cut

Sharp reduction in the abnormal postwar backlog of orders for most types of electrical equipment was reported by Tomlinson Fort, manager of central station sales for Westinghouse Electric Corp, in a talk before the public utility buyers' group of the National Association of Purchasing Agents which met recently in Chicago. He attributed the trend to increased manufacturing capacity and improvement of production lines.

The motor manufacturing industry at the start of 1947 had a backlog of orders for 2,600,000 electric motors of ordinary factory sizes, while at the start of 1949 this total had been reduced to 300,000, Mr Fort revealed. At the same time, delivery dates on large motors for powerhouse auxiliary drives have been reduced from 20 months two years ago to 11, he added.

Mr Fort explained that whereas two years ago it required from ten months to two years to get delivery on distribution transformers, this type of equipment is today no longer on allotment.

Current switchgear deliveries should certainly pose no problem to those companies planning expansion programs. At Westinghouse, for example, switchgear manufacturing facilities have been increased by more than 50%. The situation is rapidly becoming one of keeping these facilities loaded rather than one of increasing production.

In the street lighting field, Mr Fort said, the situation has greatly improved in the past two years. Almost all luminaires, reflectors, and cable are available either from stock or with delivery time of up to eight weeks. Similar conditions exist on watthour meters residential service, relays, and instruments.

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Fluorescent for Tunnel

General Electric Co will furnish fluorescent lighting, controls, switchgear and allied equipment for the 9,000-ft-long, two-tube, four-lane Brooklyn-Battery Tunnel now being constructed by the Triborough Bridge and Tunnel Authority, New York.

Electrical Slate Supply Improves Perceptibly

High-quality electrical slate is still in heavy demand in the United States. Recently deliveries have shortened somewhat due to relaxation of construction and repair work in former war plants. D. E. Edgerton, general manager of the Portland-Monson Slate Co, operating in Maine, tells ELECTRICAL WORLD that orders in hand would occupy his company about three months if no new ones came in. Last December about six months' work was on the books. Currently deliveries total about 90,000 lbs per week. These go mainly to leading electrical manufacturers, with some industrial buyers. The demand is mainly for slate for 5 or 6 kv maximum circuit work. Emergency deliveries can be made to customers with known conditions, and close contacts are constantly maintained with the market. Literally thousands of sizes of panels and of widely varying thicknesses are specified by purchasers.

Cause of Limited Supply

Basic cause of the limited supply of this material is the concentration of deposits in relatively small areas in Maine and France. The company mentioned above is the primary source of American slate. This material is a recrystallization of silicates into a new compound of potassium, aluminum, and silica, with some iron pyrites, mica, and chlorinates. It is inorganic and cannot carbonize or burn. Its insulation resistance when tested at 15 kv on a sample 1 inch thick warrants its use up to 6 kv.

Mining Operation at Monson

At the company's Monson holdings quarrying has become a full-fledged mining operation at depths reaching 800 ft. Shafts are dynamited, followed by splitting and salvage work. Jack hammers and diamond bits cut into the vein, and blasting sets the slate free for hoisting to the surface. Here are done splitting, milling, planing, beveling, and dimensioning. About five days are required to process the slate on arrival at the surface. Connected load runs around 1,300 hp with a typical peak load of 315 kva and monthly usage of 60,000 to 100,000 kwhr, with

heavier pumping in the spring and fall. The company is developing a new shaft at Monson in addition to three now in service, but about four years are required to get a new shaft into full operation. Meanwhile attention is being given to the possible use of channeling machines in the mine to speed up production.

•

Permanente Metals Opens Wire and Cable Lines

The Permanente Metals Corp. through its sales affiliate, Permanente Products Co. has opened its aluminum wire and cable production schedules to all users of aluminum electrical conductor throughout the nation. Announcement that Permanente was ready immediately to review specific requirements for production of ACSR at its Newark, Ohio, mill was made in a letter to the industry. Actual mill operation is scheduled to start during the third quarter of this year, with deliveries to customers being conservatively scheduled to start in the fourth quarter.

Orders for the company's estimated initial quarterly production rate of 15,000,000 lbs of conductor will be accepted for delivery during the fourth quarter of 1949, with increasing quarterly quantities to follow thereafter. To help meet the larger metal demands of this ACSR program, Permanente has also completed plans to increase its primary aluminum capacity.

Permanente production of ACSR will cover the full range of standard sizes. Prices will be competitive. The company will handle aluminum conductor sales through its established national sales organization. An aluminum conductor sales department has been established at the company's home offices in the Kaiser Bldg, Oakland, Calif., for the handling of special inquiries.

•

W. N. Matthews Corp Moves

The W. N. Matthews Corp of St. Louis, Mo., have completed and are now occupying their new modern plant and offices at 3850 Delor St. The one-story structure contains 50,000 sq ft of floor area and is situated on a 4.6 acre tract to allow for future expansion.

•

Gets Capacitor Machine

Sprague Electric Co. North Adams, Mass., through the Herlec Corp, a wholly-owned subsidiary, has, after extended negotiations with the Du Pont Co and the Signal Corps, acquired possession of an automatic machine for the output of vitreous enamel capacitors.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Arkansas — Arkansas Valley Electric Co-operative Corp., Ozark, 400 mi. rural distr. lines, to serve 1,000 customers in Crawford, Franklin, Johnson, Newton, Pope, Yell, Scott, Logan and Sebastian Counties. **$400,000.** H. B. Gieb & Assoc., 1207 Texas Bank Bldg., Dallas, Tex., consult engrs.

Colorado—Bureau Reclamation, Dtp. Interior, Bldg. 1-A, Denver Federal Center, Denver, 750-kva substation at Paxton, Colorado-Big Thompson Proj., Spec. 2549. Michael W. Straus, comr., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Wild's Spur, outdoor power transformer, station-type step-voltage regulator; outdoor, bypass disconnecting switches; outdoor distr.-type lightning arresters; undergrounded-neutral circuit, for installation at Estes 69,000 volt substation, Colorado-Big Thompson Proj., Spec. 2563 Rush-Yuma 69 kilovolt transmission line, Colorado-Big Thompson Proj. between Brush and Yuma, Spec. 2555. L. N. McClellan, ch. engr.

Conn., Middletown—State Dpt. Mental Health, Hartford, power plant, housing for employees, staff bldg., occupational therapy, Connecticut State Hospital. **$1,077,267.**

Conn., Norwalk—City, Third Taxing Dist., Norwalk, municipal electric expans., enlargement electric power facilities. **$250,000.**

Conn., Norwich — State Dpt. Mental Health, Hartford, power plant, laundry, etc., Norwich State Hospital. **$1,250,000.**

Iowa—Maquoketa Valley Rural Electric Co-operative, Anamosa, rural distr. lines, Jones Co. **$790,000.** Brown Eng. Co., K. P. Bldg., Des Moines, engr.

Iowa—Guthrie County Rural Electric Co-operative Assn., Guthrie Center, rural distr. lines, incl., approx. 50.86 mi. single phase primary, approx. 0.5 mi. V. phase primary, approx. 2.2 mi. three phase primary, approx. 7.3 mi. single phase to V phase conversion, approx. 6.3 mi. single phase to three phase conversion, approx. 1.2 mi. single phase reconductoring, approx. 3.94 mi. weatherproof service, 2 substations, Proj. IOWA 211I & K Guthrie, Adair, Audubon, Cass and Guthrie Counties. Plans deposit $25. Philip L. Burns, 630 Davenport Bank Bldg., Davenport, engr.

Louisiana — Louisiana Rural Electric Corp., c/o P. E. Randol, pres., Alexandria, 247 mi. rural distr. line, Grant, Natchitoches, Evangeline, Avoyelles and St. Landry Parishes. $250,000. Plans deposit $25. Freese & Nichols, 407 Daneiger Bldg., Fort Worth, Tex., engrs.

Mo., Poplar Bluff—M. & A. Electric Power Co-operative, Poplar Bluff, Sect. 1, diesel generating units, auxiliary equip., piping, covers, Stanley Eng. Co., Hershey Bldg., Muscatine, Ia., engr.

Okla., Fairview—City, City Hall, municipal electric sys. extens. **$100,000.** Alexander & Follard, Terminal Bldg., Oklahoma City, consult. engrs.

Oregon—Bonneville Power Admin., 729 N.E. Oregon St., Portland, addns. to Troutdale Substation, east of Sundial Rd., 1 mi. north of U. S. Hy. 30 near Troutdale, Multnomah Co., Inv. 1495. Plans deposit $25.

Texas—Gate City Electric Co-operative, Childress, 128 mi. rural distr. lines, headquarters facilities, etc., Childress Co. **$190,000.**

Washington—Bureau Reclamation, Dpt. Interior, Ephrata, outdoor power transformer, outdoor power circuit breaker, outdoor-horn-gap switches, outdoor disconnecting switches, disconnecting fuses, outdoor-station-type lightning arrestors, grounded-neutral circuit for 115 kv and 13.8 kv Substations Burbank Pump Plant 1, Columbia Basin Proj., Spec. R1-CB-8. Plans deposit $1.

Low Bidders & Contracts Awarded

Ia., Denison—City, City Hall, turbo-generator condenser for light and power plant extens., to Elliott Co., Jeanette, Pa., **$161,040.** Bids 1/25.

Missouri—Co-Mo Electric Co-operative, Jack H. Needy, mgr., Tipton, Jan. 26, 287.02 mi. rural distr. lines, 11 mi. conversion work, Benton, Morgan, Moniteau and Cooper Counties, Proj. MO. 47M Cooper, from Howard Constr. Co., Sedalia. **$113,689.**

New Mexico—Mora-San Miguel Electric Co-operative, Inc., Mora, general contract labor only 287 mi. rural distr. lines, Mora Co., to Thompson, Haight & Keister, 2906 N. Port Ave., Oklahoma City, Okla., **$130,799.** Bids 11/9, awarded 1/30.

Tex., Colorado City — Texas Electric Service Co., Electric Bldg., Fort Worth, Feb. 1, Morgan Creek Dam for generating electric power and furnishing 30,200 acre ft. water, to Wallace and Bowden and Shilling Constr. Companies, **1413** E. Grand Ave., Dallas, Zone 10, **$495,800.**

Washington—Bureau Reclamation, Dtp. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Feb. 1, Schedules 1, four 230,000/196,000 volt circuit breakers and Schedule 2, fifteen 230,000 volt lightning arresters, Grand Coulee 230-kv right switchyard, Columbia Basin Proj., Spec. 2499, from General Electric Co., 650-17 St., Denver, Colo., **$310,500,** f.o.b. Odair.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

O., Columbus—Ohio State Fairgrounds Comm., Columbus, Ohio State Fair Plant containing 25 bldgs. and 24,000 auto parking space, bldgs. included are 20,000 seating capacity coliseum, state exhibit bldg., exhibit bldgs. for horses, sheep, poultry, cattle, swine, 4-H Clubs or Junior Fair, industrial exhibits, agricultural, or horticultural exhibits, women's and school exhibits, various services, dormitories, hospital, fire, police, post office, bus terminal, recreation, grandstand, race track and horse barns, on 523 acre site north of Ohio State University. **$11,700,000.** Vogt, Ivers, Seaman & Assoc., 2nd Natl. Bank Bldg., Cincinnati, consult. engrs.

Pa., Pittsburgh—Pennsylvania R. R. Co., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila., Zone 4, plans by McKim, Mead & White, 100 Park Ave., New York, N. Y., platform and exits on Liberty Ave. at 13 St. and 1 story, brick, tile shlter over tracks, approx. ¼ mi. long 16 tracks in width, switch controls, signals and communications, ramps, renovating waiting rooms. **$14,000,000.**

Tenn., Nashville—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash., 25, D. C., federal office bldg. $5,000,000. Marr & Holman, Stahlman Bldg., archts.

Low Bidders & Contracts Awarded

Tenn., Chattanooga—Interstate Life & Accident Insurance Co., c/o Hart, Freeland & Roberts, archts., 3rd Natl. Bank Bldg., Nashville, 6 story office, to Mark K. Wilson Co., Chamberlain Bldg. Est. **$1,750,000.** Awarded 1/28.

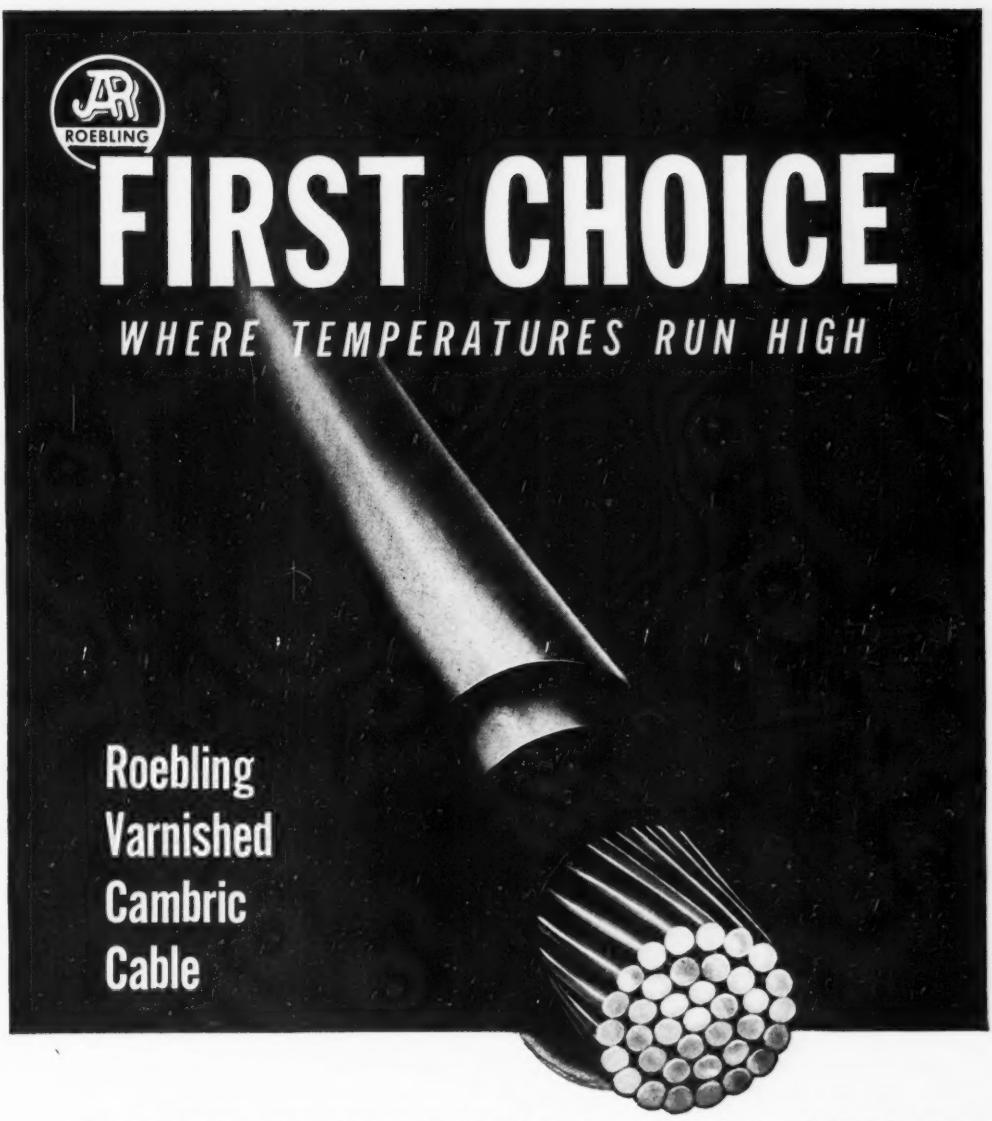
Tex., Houston—T. B. Hubbard Constr. Co., 1507 Delano St., apartment, off Richmond Rd., **$1,400,000;** 100 residences off Griggs Rd. **$600,000.** Owner builds. Wilson, Morris & Grain, 3212 Smith St., archts.

Ore., Portland—Multnomah Co., Courthouse, Feb. 1, juvenile home, from Ross B. Hammond Co., Box 3981, **$1,032,110.**

JR ROEBLING

FIRST CHOICE

WHERE TEMPERATURES RUN HIGH



HEAT RESISTANCE YOU CAN COUNT ON

FOR TOPFLIGHT DEPENDABILITY where heat is a hazard, turn to Roebling Varnished Cambric Cable! You'll find it far superior to rubber-insulated cables for motor and generator leads and it is outstandingly adapted for transformer and oil switch leads.

Roebling Varnished Cambric Cable comes in single and multiple conductor types—single, from 2,000,000 C. M. to No. 14 A.W.G. Designed for use up to 17,000 volts between phases for unshielded multiple conductor . . . up to 21,000 volts between phases for single conductor and shielded cables on ungrounded neutral systems . . . up to 28,000 volts between phases for single conductor and shielded cables on grounded neutral systems.

Write for full information, or get in touch with your Roebling Distributor who will gladly help. John A. Roebling's Sons Company, Trenton 2, N. J.

WRITE OR CALL THE ROEBLING FIELD MAN AT YOUR NEAREST ROEBLING OFFICE AND WAREHOUSE

Atlanta, 934 Avon Ave. ★ *Boston*, 51 Sleeper St. ★ *Chicago*, 5525 W. Roosevelt Rd. ★ *Cleveland*, 701 St. Clair Ave., N. E. ★ *Denver*, 1635 17th St. ★ *Houston*, 6216 Navigation Blvd. ★ *Los Angeles*, 216 S. Alameda St. ★ *New York*, 19 Rector St. ★ *Philadelphia*, 12 S. 12th St. ★ *Pittsburgh*, 855 W. North Ave. ★ *Portland, Ore.*, 1032 N. W. 13th Ave. ★ *San Francisco*, 1740 17th St. ★ *Seattle*, 900 First Ave.

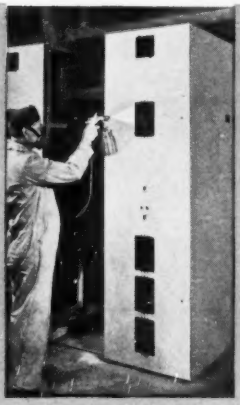
ROEBLING

☆ A CENTURY OF CONFIDENCE ☆

YOU CAN BE SURE.. IF IT'S Westinghouse

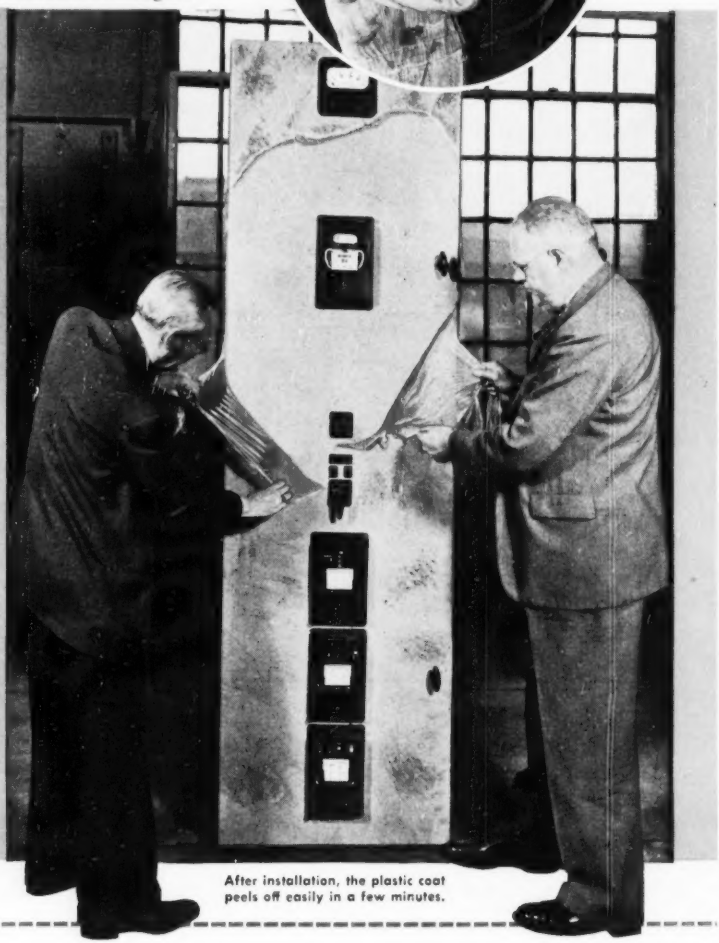
IN 1947

Westinghouse provided All-Weather Undercoating...Lifetime protection for undersurfaces of *outdoor* switchgear



Plastic coating is sprayed on the switchgear panel before assembly, just after final painting.

Unavoidable smudges and grease on this switchgear unit affect only the protective plastic coating.



After installation, the plastic coat peels off easily in a few minutes.

NOW... PLASTIC PROTECTION for Indoor Switchgear

Removal of the plastic coat reveals the original smart appearance of the switchgear unit.

Another Westinghouse Switchgear Feature

AT NO ADDED COST!

Dust, dirt and greasy fingerprints "peel off" switchgear units in a few minutes. The new plastic coating protects the smart appearance of metal-clad switchgear during shipping and installation. No longer is touch-up and repainting necessary to give your installation that "fresh-from-the-factory" appearance.

To give you this added benefit, Westinghouse employs a transparent plastic material. Sprayed on indoor metal-clad switchgear panels after final painting, it forms a tough protective coating that protects the finish through final assembly and wiring—and during shipment and installation. When the switchgear is ready for operation, simply "peel off" the plastic coat. Your installation then reveals the original factory finish. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

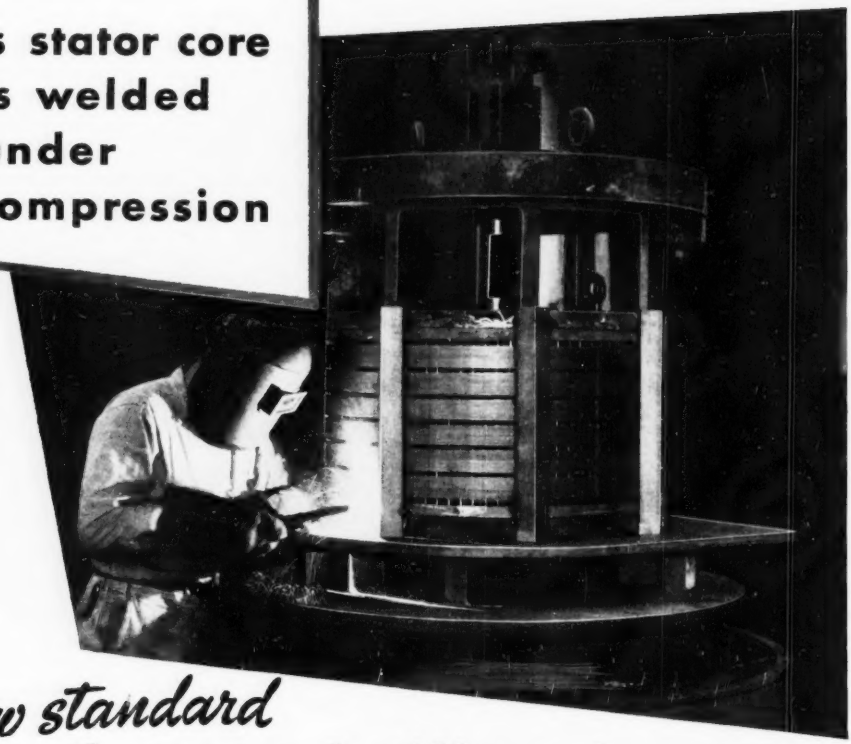
J-60689

Westinghouse

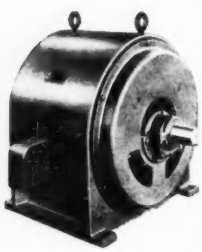
METAL-CLAD SWITCHGEAR

FOR ANY SYSTEM

This stator core is welded under compression



A new standard of structural stiffness in motors



is set up when a motor is built the Fabri-Steel way. *First,* the stator laminations are stacked on a mandrel, between heavy steel clamping plates. *Next,* hydraulic pressure, accurately controlled for correct compression, is applied to the stack. *Finally,* cross members of heavy steel angles are welded to the clamping plates and at certain points across the core laminations, and at the ends, to the heavy steel frame end plates. It's hard to conceive of more rigid construction than this.

Add to that a heavy plate cover, transverse baffle plates to direct ventilation, and heavy bars for supporting feet—all steel and all welded—and you have a motor with all the stiffness that the modern art of steel fabrication can provide, which in spite of its extra ruggedness is still lighter in weight than the old-type cast iron designs.

150 to 1000 hp—four to fourteen poles—drip-proof, splash-proof, enclosed separately (forced) ventilated, enclosed self (pipe- or base-) ventilated. Write for Bulletin PB7000-2.

ELLIOTT COMPANY
Electric Power Dept., RIDGWAY, PA.
Plants in JEANNETTE, PA. • RIDGWAY, PA. SPRINGFIELD, OHIO • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

L-787

Reg. U.S. Pat. Off.

Elliott FABRI-STEEL Motors

NEWS ABOUT PEOPLE

Johnson Directs Operation for California Edison

Wayne N. Johnson, engineer in charge of the Southern California Edison Co.'s recent frequency change program, has been named vice-president in charge of operation of that utility. **R. E. Fife**, comptroller, was also elected a vice-president.

Mr Johnson, who supervised the changeover of Edison territory from 50- to 60-cycle operation, joined the company in 1937 as manager of the Vernon City district, having just completed six years as chief electrical engineer of the

WAYNE N. JOHNSON

department of light and power of the city of Vernon.

He was appointed superintendent of distribution in 1941 and four years later assistant manager of operation.

Mr Johnson, following his election as vice-president, was succeeded by E. B. Kruger as administrator of the frequency change department.

Mr Fife joined the Southern California organization in 1919.

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Walter H. Croft, engineer with the Central Arizona Light & Power Co, Phoenix, is president of the newly-organized Arizona Society of Professional Engineers.

L. A. Brettner has joined the staff of Reddy Kilowatt Service at New York headquarters in the capacity of executive assistant. Mr Brettner has a wide background in public utility advertising, starting in the industry in 1932 in the advertising department of the Pennsylvania Power & Light Co at Allentown. In 1940 he became advertising manager of the United Illuminating Co at New Haven, Conn. After discharge from military service, he joined the J. M. Hickerson Advertising Agency as account executive on the EEI Planned Lighting Program in 1947.

•

J. F. Fairman Nominated for AIEE Presidency

(See Front Cover)

James F. Fairman, vice-president of the Consolidated Edison Co of New York, was nominated for the presidency of the American Institute of Electrical Engineers at the annual meeting held recently in New York.

Mr Fairman has been vice-president in charge of electrical production and operation for Consolidated the past three years. He joined the Consolidated Edison system in 1925 and was associated with Brooklyn Edison Co until 1937, when he was transferred to Consolidated Edison. After completing the student course with the Westinghouse Electric Corp he joined the teaching staff of the University of Michigan, his alma mater.

Other officers nominated were as follows: Vice-Presidents, C. G. Veinott, Westinghouse, Lima, Ohio; Walter J. Seeley, Duke University, Durham, N. C.; W. C. DuVall, University of Colorado, Boulder; Ralph A. Hopkins, Westinghouse, Los Angeles; Arthur H. Frampton, English Electric Co of Canada, Ltd, St. Catherines, Ontario, Canada.

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George R. Gaskell has resigned as vice-president, secretary, and treasurer of the Leland Electric Co, Dayton, Ohio. Mr Gaskell has been an executive of the company for the past five years.

Edward E. Howe, engineer in the overhead transmission department of the Potomac Electric Power Co, has joined the Copper Wire Engineering Association. He will work as a headquarters engineer in the Washington office. Mr Howe has been with Pepco since 1928 except for a leave of absence spent in Korea after the war as an operating engineer.

Urner and Feaster Assume New Engineering Duties

Announcement has been made of the appointment of M. J. Urner as transmission engineer for the Potomac Edi-

M. J. URNER

son System, Hagerstown, Md., and of W. C. Feaster as electrical engineer. Mr Feaster is filling the position left vacant following the death of George Twyford. He will be responsible for the design, construction, and maintenance of substations and substation equipment and will also supervise the

W. C. FEASTER

electrical construction department. Mr Urner will supervise the engineering of electric transmission lines operating above 15,000 v.

Mr Urner joined the company's construction department in 1925, subsequently going to Frederick as district

engineer. He then returned to Hagerstown as assistant distribution engineer and in 1930 was named assistant to the operating vice-president.

Mr Feaster started with the company in 1924 at the Williamsport power plant. The following year he was transferred to the Hagerstown substation construction department and in 1934 was named technical engineer of the company.

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Charles C. Bonin, hydraulic engineer for Ebasco Services, Inc, New York, has left for Bangkok, Siam, where he will survey that kingdom for potential hydroelectric development sites. The survey, partly aerial, is being made in collaboration with International GE.

OBITUARY

Edward Fox, district representative of the construction materials department of the General Electric Co in New York, died suddenly on Feb 7 at his home in that city. He was 53 years old. He started his career in 1910 with the Sprague Electric Co, which was taken over by the General Electric Co in 1923.

Clarence A. Forrest, for many years purchasing agent of the Central Vermont Public Service Co, Rutland, died at St. Petersburg, Fla., Feb 8. He was formerly purchasing agent of the predecessor Twin State Gas & Electric Co, operating in Vermont and New Hampshire. He was 75 years old. Mr Forrest had spent 43 years with the utilities mentioned. He was a past-president of the Vermont Electrical Association.

Otis A. Kenyon, chairman of the board of Kenyon & Eckhardt, Inc, advertising agency, New York, died of a cerebral hemorrhage on Feb 3 in Nassau, Bahamas, where he was spending a vacation. Before entering the advertising business in New York, Mr Kenyon was well known as an engineer. Early in his career he was connected with the editorial staff of ELECTRICAL WORLD and was editor and co-author of the first three editions of the Standard Handbook for Electrical Engineers. In 1918 he became associated with the Ray D. Lillibridge Co, technical advertising. He helped to organize the firm of Kenyon & Eckhardt in 1929, starting as treasurer and director and becoming chairman of the board in 1942. Mr Kenyon was an inventor of some note, having to his credit many patents, particularly in the welding field. He was a member of the American Institute of Electrical Engineers and of other engineering and scientific societies.

A. B. Chance

A. B. Chance, founder and chairman of the board of the A. B. Chance Co, Centralia, Mo., died suddenly of a heart attack on Feb 8 in St. Petersburg, Fla., where he was spending the winter months. He was 75 years old.

Mr Chance's work as inventor, salesman, and engineer in the early days of the Chance company took him all over the United States, and he was well

A. B. CHANCE

known in the electrical and communications industries. His founding of the company grew out of his work as manager for the Centralia telephone system in the early 1900's. Some of the devices he made to improve the telephone service in that city were marketable, and the organization of the A. B. Chance Co for their manufacture resulted in 1907.

As his business expanded, Mr Chance made many contributions to the progress of the electrical and communication industries by the manufacture of numerous time and labor-saving devices that improved construction methods. Notable among these was his Never-Creep Anchor, developed in 1912, which sparked the growth of his small manufacturing business. Under his guidance this company soon became a major supplier of line construction, maintenance, and operating equipment, doing business throughout the United States, Canada and in many foreign lands.

Mr Chance became chairman of the board in 1940 and his son, F. Gano Chance, was made president and general manager.

•

William M. White, hydraulic engineer, died on Feb 9 at his home in Coral Gables, Fla., at the age of 77. Mr White, who retired in 1942, had been manager and chief engineer of the hydraulics department of Allis-Chalmers Manufacturing Co in Milwaukee for 31 years. Mr White was well known for his design work on the Boulder Dam turbines and for turbines of many other dams in this country. He was a member of the American Institute of Electrical Engineers and of other engineering societies.

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Thomas O. Moloney

Thomas O. Moloney, co-founder and chairman of the board of directors of the Moloney Electric Co, who recently died, (EW Feb 5, p. 19) was widely known in the electrical manufacturing industry.

He, with his brother-in-law, the late James J. Mullen, founded the company in 1896 as a modest venture. The company grew to its present position in the electrical industry because of their developments and innovations in transformer design and manufacture. They pioneered the commercial use of silicon steel for transformer cores in America because of its non-aging qualities. This subsequently led to the adoption of silicon steel for transformer cores by most manufacturers.

Under Mr Moloney's direction, the company developed the interlaced winding as a method of balancing the loading on single-phase transformers when used for three-wire service. Mr Moloney was among the first to use oil to replace

THOMAS O. MOLONEY

air and compound as an insulating and cooling medium in transformers. He also developed the present method of determining winding temperature rise, by measuring its resistance.

Mr Moloney was a fellow of the American Institute of Electrical Engineers and at one time served on the board of governors of NEMA.

•

Thomas A. Lees, 63, vice-president and general manager of the Manchester (Mass.) Electric Co, died at his home in that city on Feb 7.

NEW EQUIPMENT

High Frequency Preheater

A 3-KW 40-MC PREHEATER is now available, according to the Industrial Heating Division of General Electric Co, Schenectady 5, N. Y. Operating on 230 v, single phase, 60 cycles, the preheater is said to heat 40 oz of wood-flour phenolic compound from 70 F to 250 F in one minute.

Requiring 2¼ sq ft of floor space, the unit has an automatic "pop-up" cover and two time circuits for alternate press operation, as well as control circuit fuses, overload relay and safety interlocks on cover and control circuit door. In addition, a vane-axial blower cools equipment during operation. Bulletin GEA-5091 contains further information.

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Plastic Diffuser

WITH an 80% transparency coefficient, a snap-on Plexiglas diffuser has been designed for Lightmaster fixtures by Lightolier, Inc, 11 E. 36th St, New York, N. Y. The homogenous milk-white color is said to cut surface brightness and create a uniform diffusion of light along the panel surface.

Diffusers are available for round, flat or cylindrically shaped luminaires which may be recessed, suspended or surface mounted as individual fixtures or in continuous rows.

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Carrier Telephone System

DESIGNED as a single channel installation, with provision for addition of one or two channels as required, the wire line or radio-link Type 33 carrier system is available from Lenkurt Electric Co, 1108 County Rd. San Carlos, Cal. This channel can be stacked on existing single channel systems of many types.

Loop gain of a channel terminal is 30 db (normally a span up to 250 miles of wire line without repeaters). Systems can be extended by the use of repeaters having 25-db gain, which also are stackable so that each channel can be individually repeatered. Nominal transmitting level is +14 dbm; minimum received level for a 0-db equivalent is −16 dbm. Either 2 or 4-wire operation can be used.

A full-duplex 2-way signalling channel is included, which will operate over circuit attenuation as great as 40 db. Pilot regulation, operating on an individual basis to compensate for attenuation changes, can be supplied.

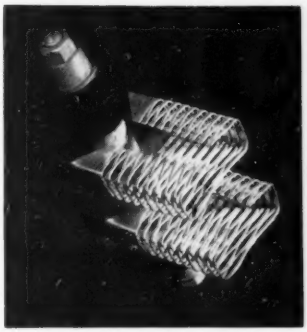
•

Mesh-Type Resistor

FOR APPLICATIONS requiring qualities of lightness, compactness and utmost reliability, a new type resistor, the Multipath, employing a mesh-type construction, is now being produced by Exmet Electrical Corp, 59 Park Ave., New York, N. Y., in conjunction with The National Lock Washer Co, Newark, N. J., under British license.

Illustrated is one end of a complete unit. The mesh, formed from the same metal as the support, is joined to it wthout mechanical break. With the resulting free access of air, high surface factor and unrestricted radiation, it is reported that the maximum operating temperature closely approaches that of a freely suspended straight conductor.

Features of the Multipath resistor include: lightness, compactness and resistance to vibration; high exposure factor for radiant heating at "black" operating temperatures; dissipations as high as 60 w as per cu in. at continuous rating, for power disposal; and practically no inductance at power-line-frequencies and low inductance in the radio frequency spectrum.



For usual power-type resistor installations, a line of standardized units are rated 20 to 80 amp (4.5 to 0.3 ohm). Special designs may be specified.

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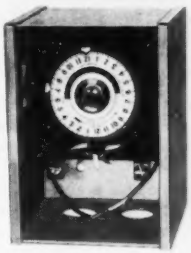
Time Switch

TO AUTOMATICALLY CONTROL on and off action for a variety of electrical circuits, the No. 948 Torkmaster time switch has been developed by Tork Clock Co, 1 Grove St, Mt. Vernon, N. Y.



The indoor case of aluminum is 3¾ x 4 x 5¼ in. and has special padlocking attachment. This synchronous, self-starting unit handles up to 30 amp on a single pole and operates on 110-125 v, 60 cycles.

ELECTRICAL BUSINESS OUTLOOK

WAGE INCREASES for 1949 should be smaller than in 1948, in the utilities and throughout industry. The shape of the fourth round is now beginning to appear. And it's a lot less ominous than the previous three, which kept utility costs moving upward.

Big factor in softening union wage demands is the drop in the cost of living. Last year most companies had to grant increases based on the rise in the BLS consumers' price index. But that index today is a slim 1% higher than a year ago. And food and clothing prices are still coming down. So unions cannot hope for much of a boost based on living costs.

In August the cost of living index hit its peak, 174.5 (1935-39=100). It leveled off in September, then dropped for three months to 171.4 at Christmas time. Now it's probably at least a point lower. That means General Motor workers—who set the pattern last year with a cost-of-living boost—won't get that sort of increase this time.

Autos and steel are the industries to watch for first indications of the 1949 wage bill. Utility wage increases, if they come, won't be until later in the year. Motor and steel companies will be hit first and hardest when their contracts reopen in the spring. High profits in those industries give the unions a talking point.

WELFARE PLANS will be an important "extra" in this year's wage demands. These include pension programs and payments in case of sickness or disability. These benefits may be easier to win than cash wage boosts. And they would add considerably to the size of the fourth round. About 5¢-an-hour straight increase looks to be all the auto or steel workers might get. But another nickel in "fringe" payments is also a good bet. So a pattern of 10¢ per hour or about 6% may shape up.

But no uniform national pattern is likely to be established. Unemployment is already rising in some industries. For this reason workers in the textile and clothing industries have already had to give up on wage increases this year. In many other lines inventories have become troublesome. And the high profits being made in some manufacturing lines just aren't there in others.

UTILITY WAGE PATTERN will be influenced by special circumstances in the industry. Weekly wages are up about 75% since prewar, compared with a 70% rise in the cost of living index. So the power companies are ahead in maintaining their employees' purchasing power. Moreover, electric utility profits have lagged far behind those in other industries and have hardly been sufficient to provide necessary cash for the expansion program.

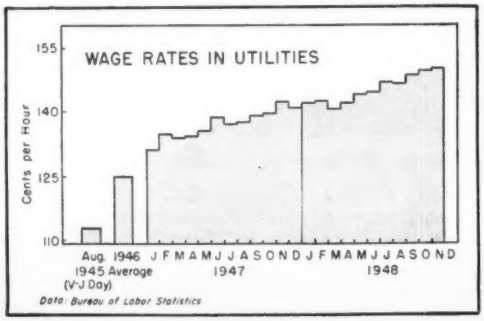
Power companies, therefore, have a good case to make against further wage increases at this time, although some concessions may be necessary if most industries grant raises. Actually the most pressing union demands may be on welfare plans. Resolutions passed at conventions of the utility unions indicate they intend to emphasize these.

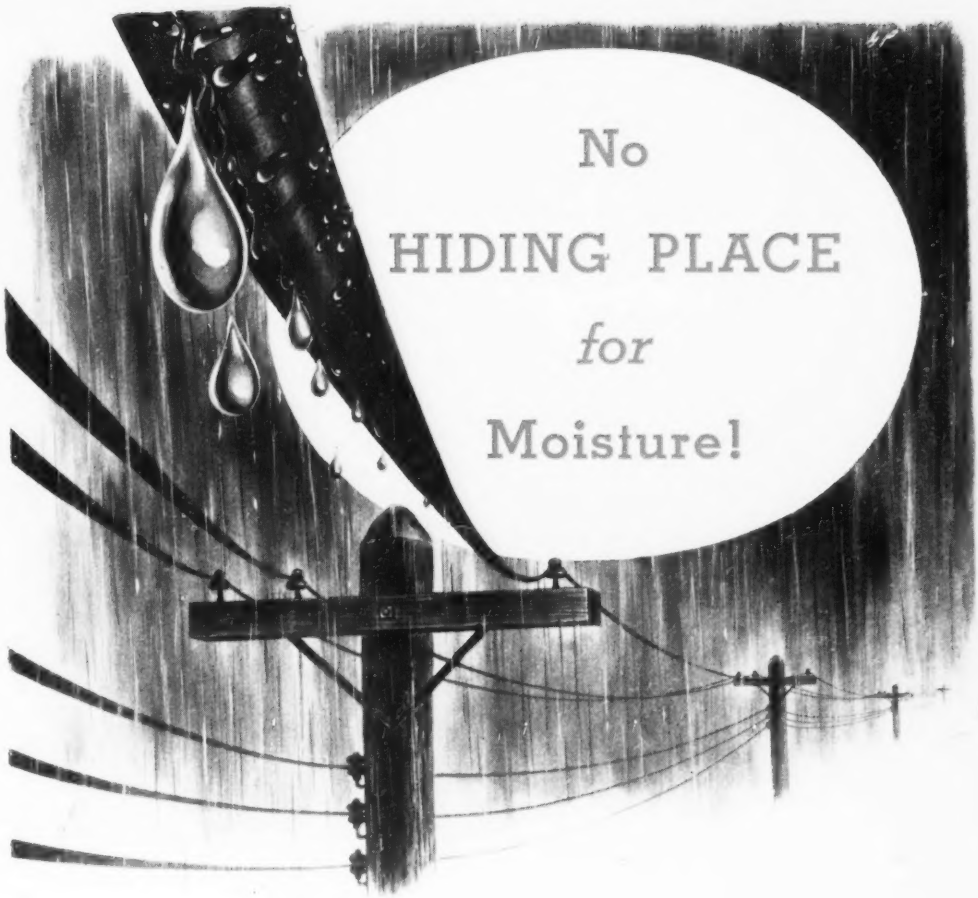
Many power companies already have benefit plans. So union policy will be to try for a voice in administering them. This may be hard to do where employees already find the plan working satisfactorily. But the International Brotherhood of Electrical Workers has already set a precedent in its agreement with electrical contractors. Under this agreement employers contribute to the union pension fund. 1949 may well see proposals to extend this system to some of the union's utility membership.

Neither direct nor indirect wage increases are likely to be as high for utilities as in manufacturing. But holding the line will not be an easy process. Courts have ruled that pensions, which many utilities set for themselves, are now a matter for compulsory bargaining. And repeal of the Taft-Hartley Act may permit unions to use tougher tactics.

The fourth round may boost utility costs by more than the small wage increase granted within the industry. If higher wages result in the steel and electrical machinery fields, prices of materials and capital equipment will go up for the power companies.

Wage negotiations in coal may be drawn out this year. With big stocks of coal above ground, neither miners nor operators will be anxious to make concessions. There is always the possibility of a protracted strike and tightening of fuel supplies.





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